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(71) Applicant and

(72) Inventor: **AHN, Kang Ho** [KR/KR]; 102-1504, Ichon
Apt., Ichon-dong, Yongsan-gu, Seoul 140-030 (KR).

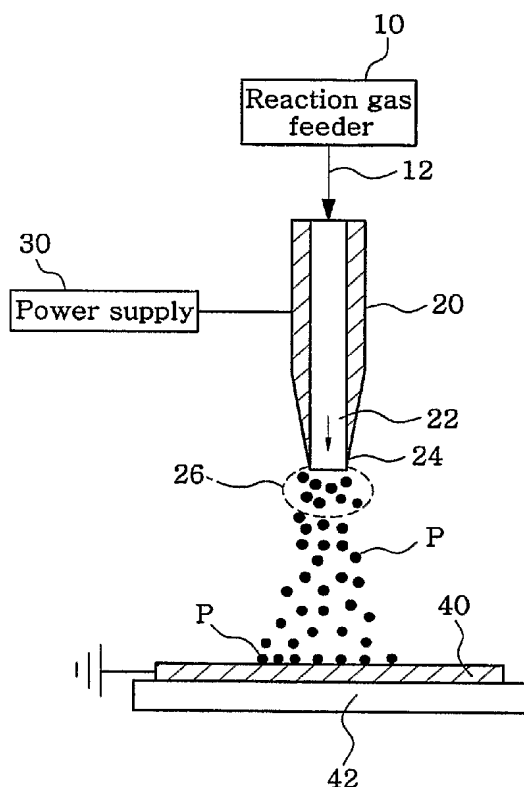
(74) Agent: **Dyne Patent & Law Firm**; 645-21, Yoksam-dong,
Kangnam-gu, Seoul 135-080 (KR).

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(54) Title: APPARATUS FOR MANUFACTURING ULTRA-FINE PARTICLES USING CORONA DISCHARGE AND METHOD THEREOF



(57) Abstract: The present invention discloses an apparatus and method for manufacturing ultra-fine particles using corona discharge capable of manufacturing the ultra-fine particles nanometers in size from a reaction gas using the corona discharge. In the apparatus for manufacturing ultra-fine particles of the present invention, a reaction gas feeder supplies a nozzle with reaction gas, and the reaction gas is injected. When a power supply applies a high voltage to the nozzle, the corona discharge occurs at the nozzle. Thus, the injected reaction gas is dissolved, and a large number of ultra-fine particles are produced. Then, a collection plate collects the ultra-fine particles. In addition, a duct encloses the nozzle, so that a passage is formed between the nozzle and duct. Sheath gas supplied to the passage of the duct forms a gas curtain between the nozzle and the collection plate, so that the gas curtain leads the flow of the ultra-fine particles. If other reaction gas is supplied to the passage of the duct and heat energy is supplied thereto, the other reaction gas reacts thermochemically, so that a large number of other ultra-fine particles are produced. The ultra-fine particles produced by the corona discharge are coated with the other ultra-fine particles. If the corona discharge is generated while the ultra-fine particles and the other reaction gas are injected by another nozzle positioned downstream of the nozzle, the ultrafine particles are coated with the other ultra-fine particles produced from the other reaction gas.

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